05050505-050505050

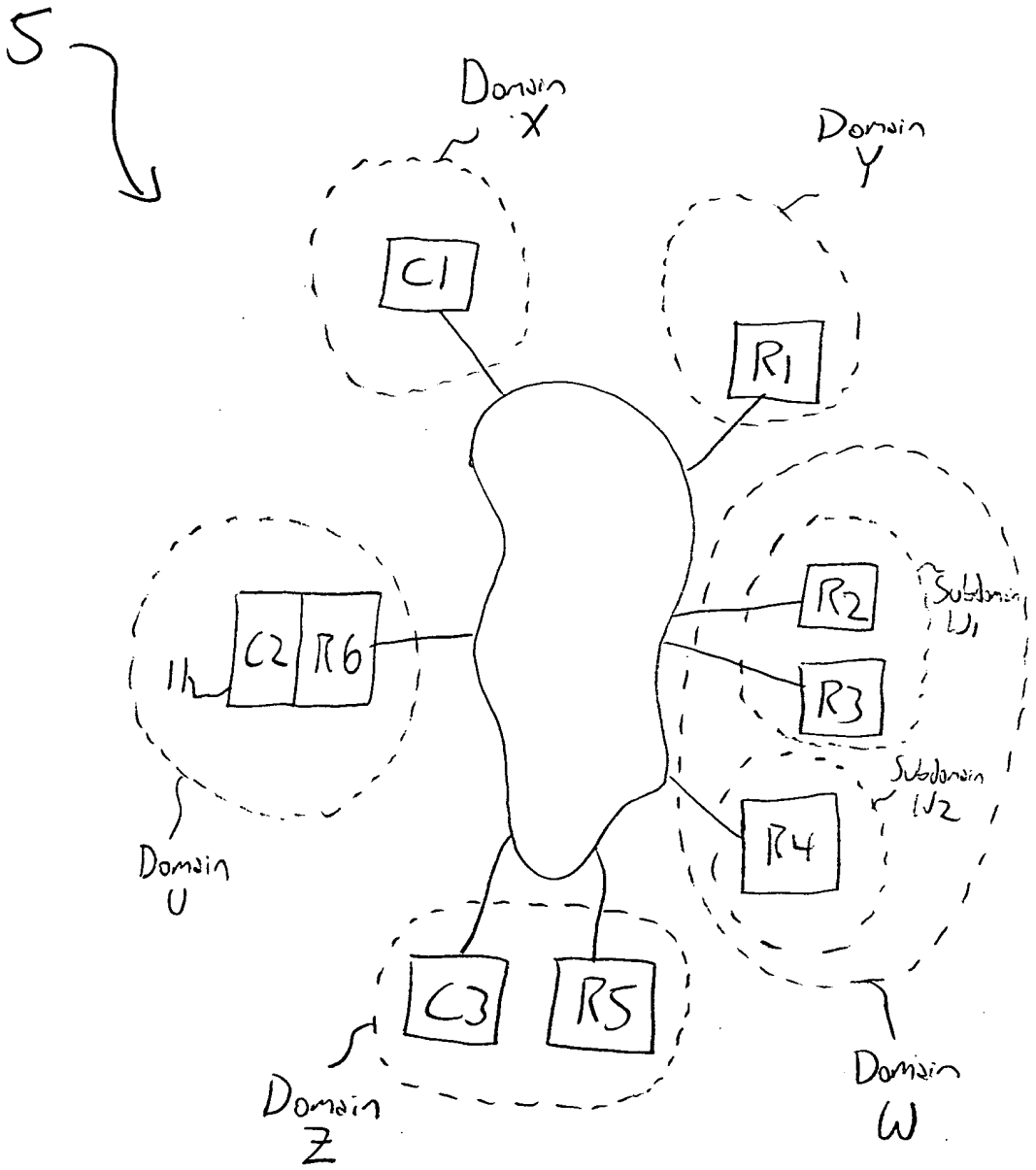

FIG 1

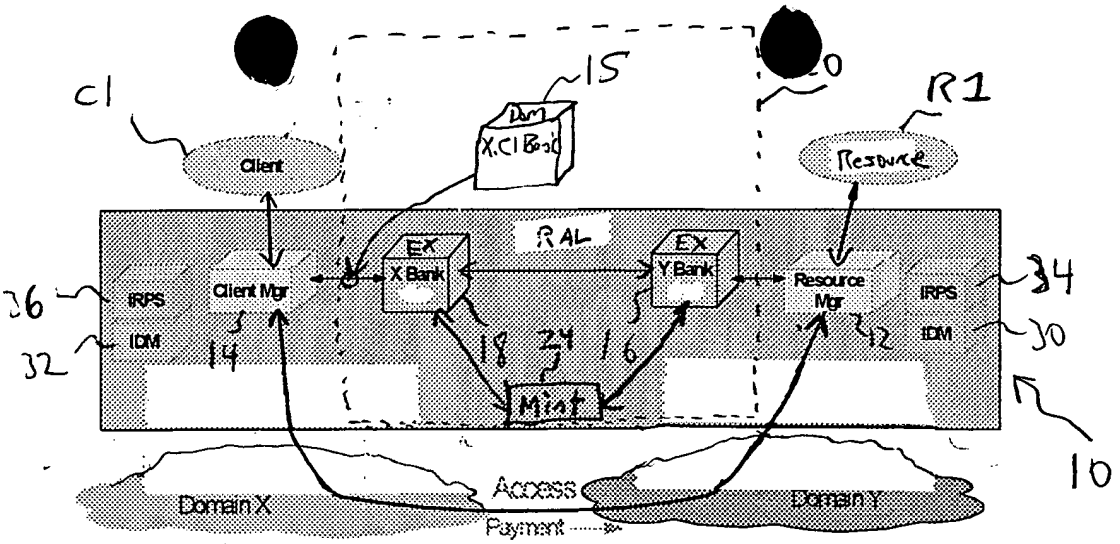
C1
15
20
R1
Client
Dom
X.C1 Bank
Resource
RAL
EX
X Bank
EX
Y Bank
Client Mgr
Resource Mgr
IRPS
IDM
IRPS
IDM
36
32
14
18
24
16
12
34
30
Mint
10
Domain X
Access
Payment
Domain Y

FIG 2

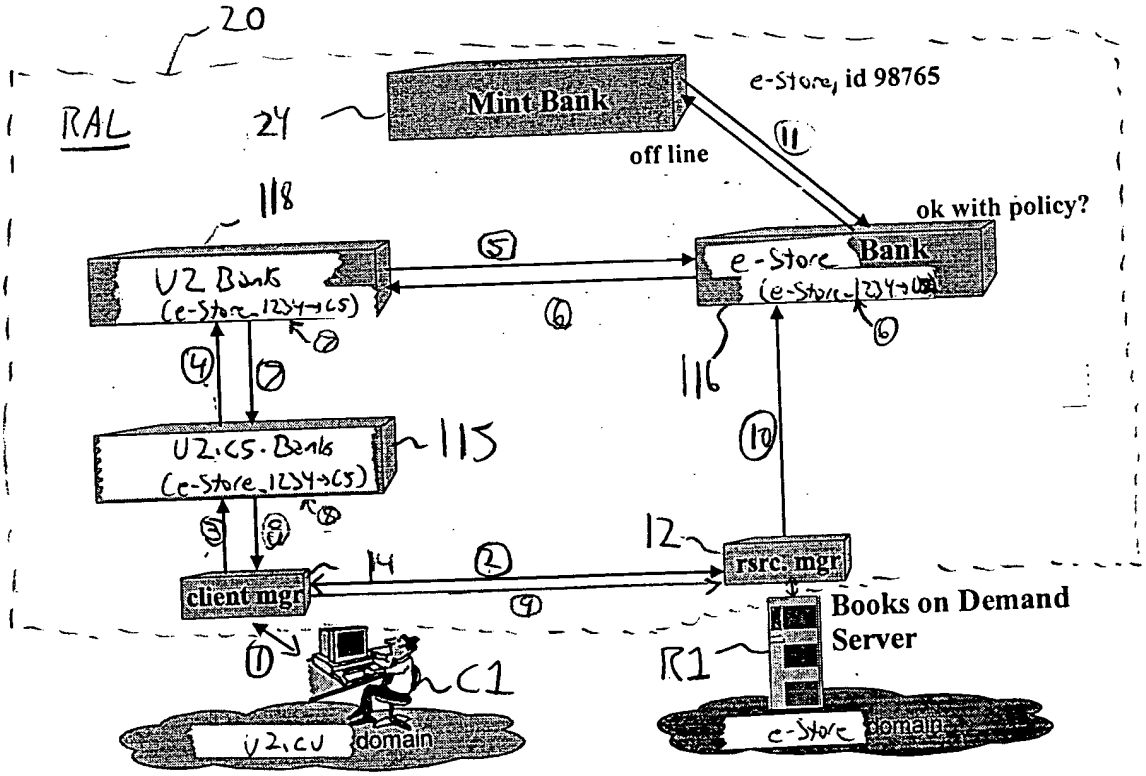
20
RAL
24
Mint Bank
e-Store, id 98765
off line
11
ok with policy?
118
U2 Bank
(e-Store_1234→C5)
5
6
e-Store Bank
(e-Store_1234→U2)
4
7
116
U2.C5 Bank
(e-Store_1234→C5)
115
10
9
8
12
14
2
rsrc. mgr
client mgr
1
Books on Demand
Server
C1
R1
U2.CU domain
e-Store domain

FIG 3.

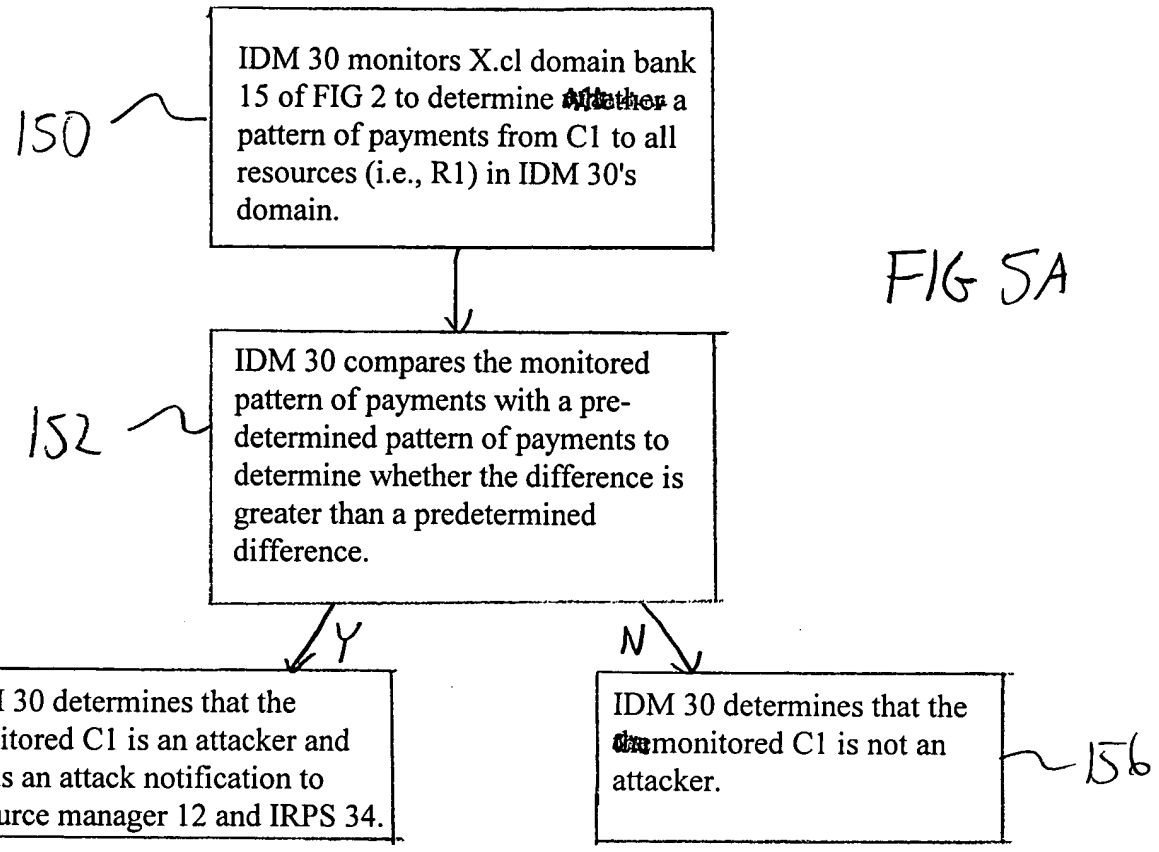
IDM 30 monitors X.cl domain bank 15 of FIG 2 to determine whether a pattern of payments from C1 to all resources (i.e., R1) in IDM 30's domain.
150
IDM 30 compares the monitored pattern of payments with a pre-determined pattern of payments to determine whether the difference is greater than a predetermined difference.
152
Y
N
IDM 30 determines that the monitored C1 is an attacker and sends an attack notification to resource manager 12 and IRPS 34.
154
IDM 30 determines that the monitored C1 is not an attacker.
156

FIG 5A

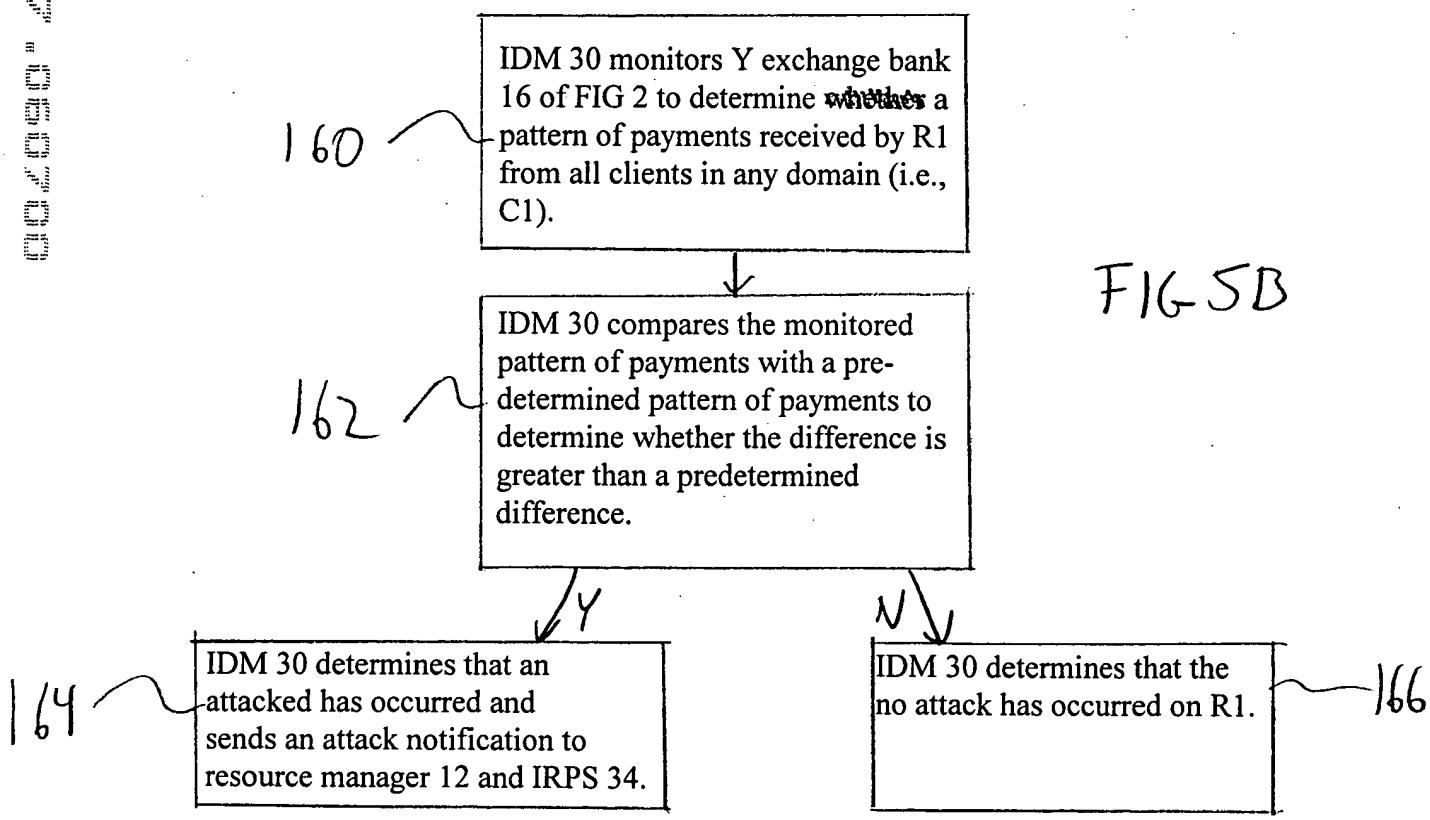
IDM 30 monitors Y exchange bank 16 of FIG 2 to determine whether a pattern of payments received by R1 from all clients in any domain (i.e., C1).
160
IDM 30 compares the monitored pattern of payments with a pre-determined pattern of payments to determine whether the difference is greater than a predetermined difference.
162
Y
N
IDM 30 determines that an attacked has occurred and sends an attack notification to resource manager 12 and IRPS 34.
164
IDM 30 determines that the no attack has occurred on R1.
166

FIG 5B

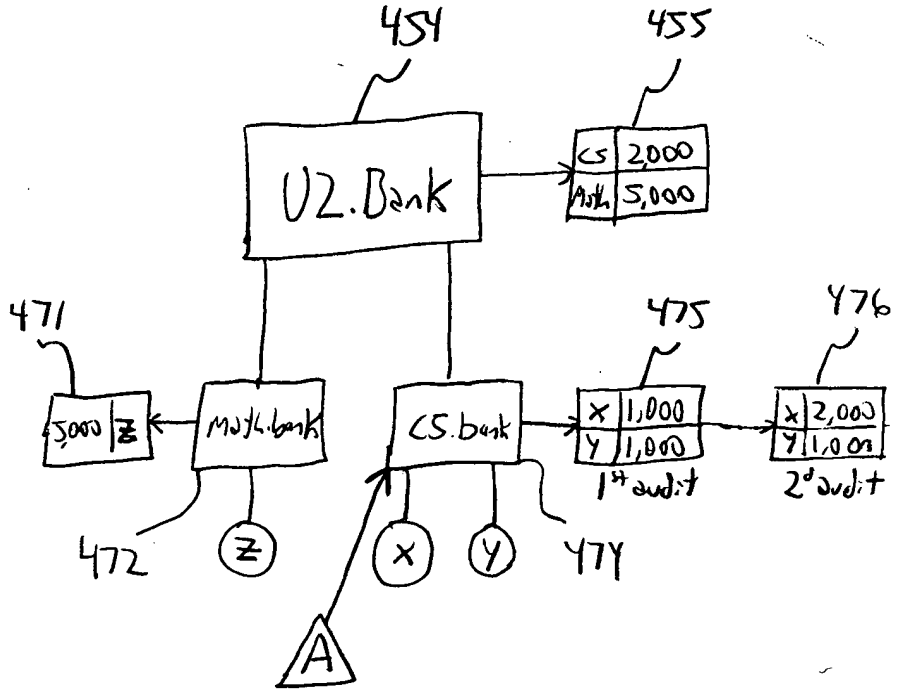
454
455
U2.Bank
CS 2,000
Math 5,000
471
475
476
5,000 Z
Math.bank
CS.bank
X 1,000
Y 1,000
1st audit
X 2,000
Y 1,000
2nd audit
472
Z
X
Y
477
A

FIG 6

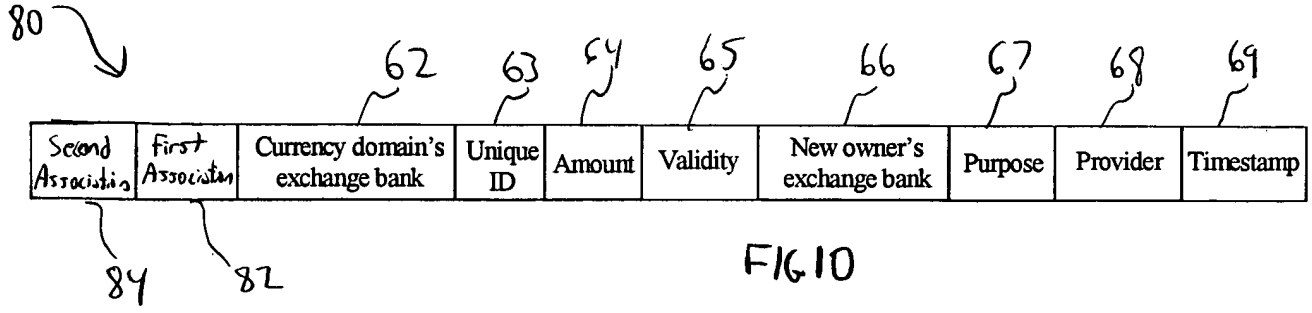
80
62
63
64
65
66
67
68
69
Second Association
First Association
Currency domain's exchange bank
Unique ID
Amount
Validity
New owner's exchange bank
Purpose
Provider
Timestamp
84
82

FIG 10

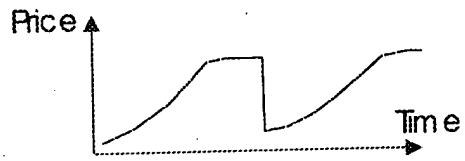

FIG 8A

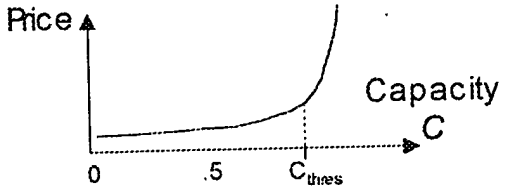

FIG 8B

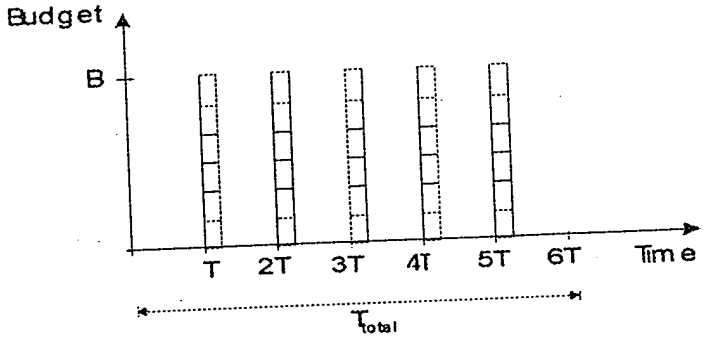

FIG 9

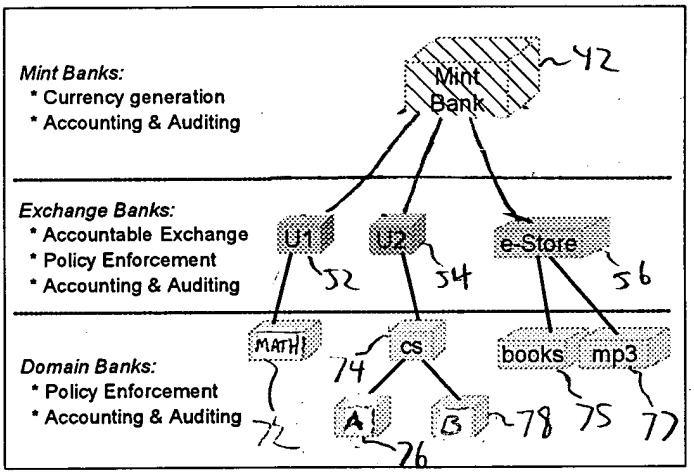
Mint Banks:
* Currency generation
* Accounting & Auditing
Mint Bank
42
Exchange Banks:
* Accountable Exchange
* Policy Enforcement
* Accounting & Auditing
U1
U2
e-Store
52
54
56
Domain Banks:
* Policy Enforcement
* Accounting & Auditing
MATH
CS
books
mp3
74
A
B
72
76
78
75
77

FIG 7

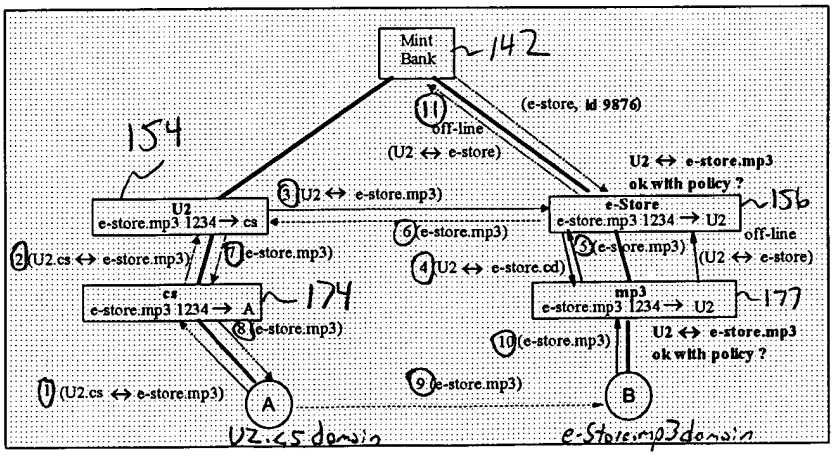
Mint Bank
142
(e-store, id 9876)
11 off-line
(U2 ↔ e-store)
154
U2 e-store.mp3 1234 → cs
3 U2 ↔ e-store.mp3)
U2 ↔ e-store.mp3 ok with policy ?
e-Store e-store.mp3 1234 → U2
156
6 (e-store.mp3)
off-line
(U2 ↔ e-store)
2 (U2.cs ↔ e-store.mp3)
1 (e-store.mp3)
5 (e-store.mp3)
4 (U2 ↔ e-store.cd)
cs e-store.mp3 1234 → A
174
mp3 e-store.mp3 1234 → U2
177
8 (e-store.mp3)
10 (e-store.mp3)
U2 ↔ e-store.mp3 ok with policy ?
7 (U2.cs ↔ e-store.mp3)
9 (e-store.mp3)
A
B
U2.cs domain
e-Store.mp3 domain

FIG 11

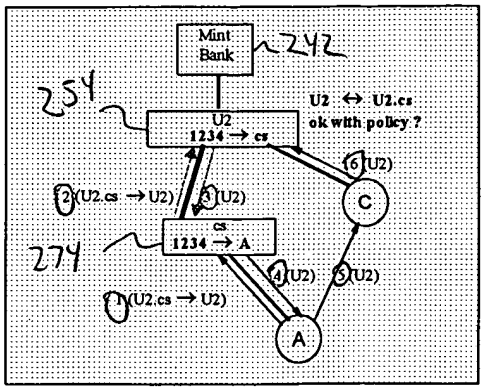

FIG 12

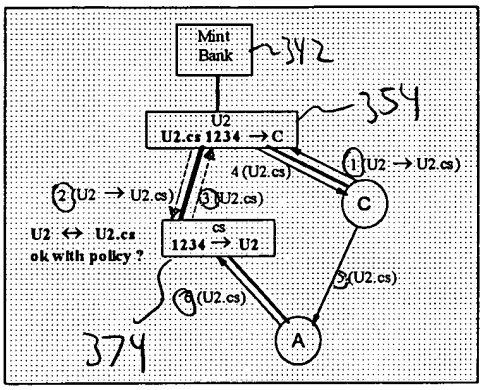

FIG 13

60

Issuing domain's exchange bank	Unique ID	Amount	Validity	New owner's exchange bank	Purpose	Provider	Timestamp
62	63	64	65	66	67	68	69

FIG 4

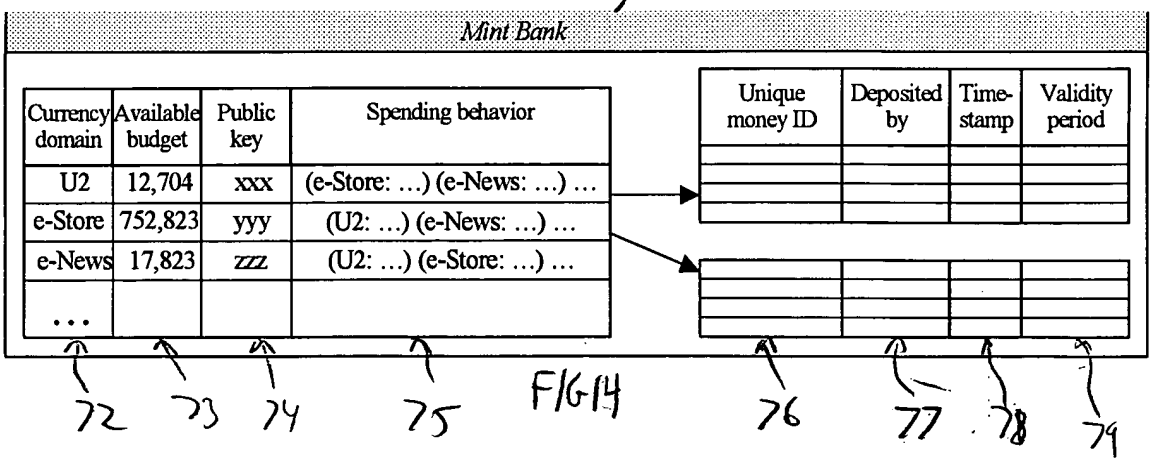

FIG 14

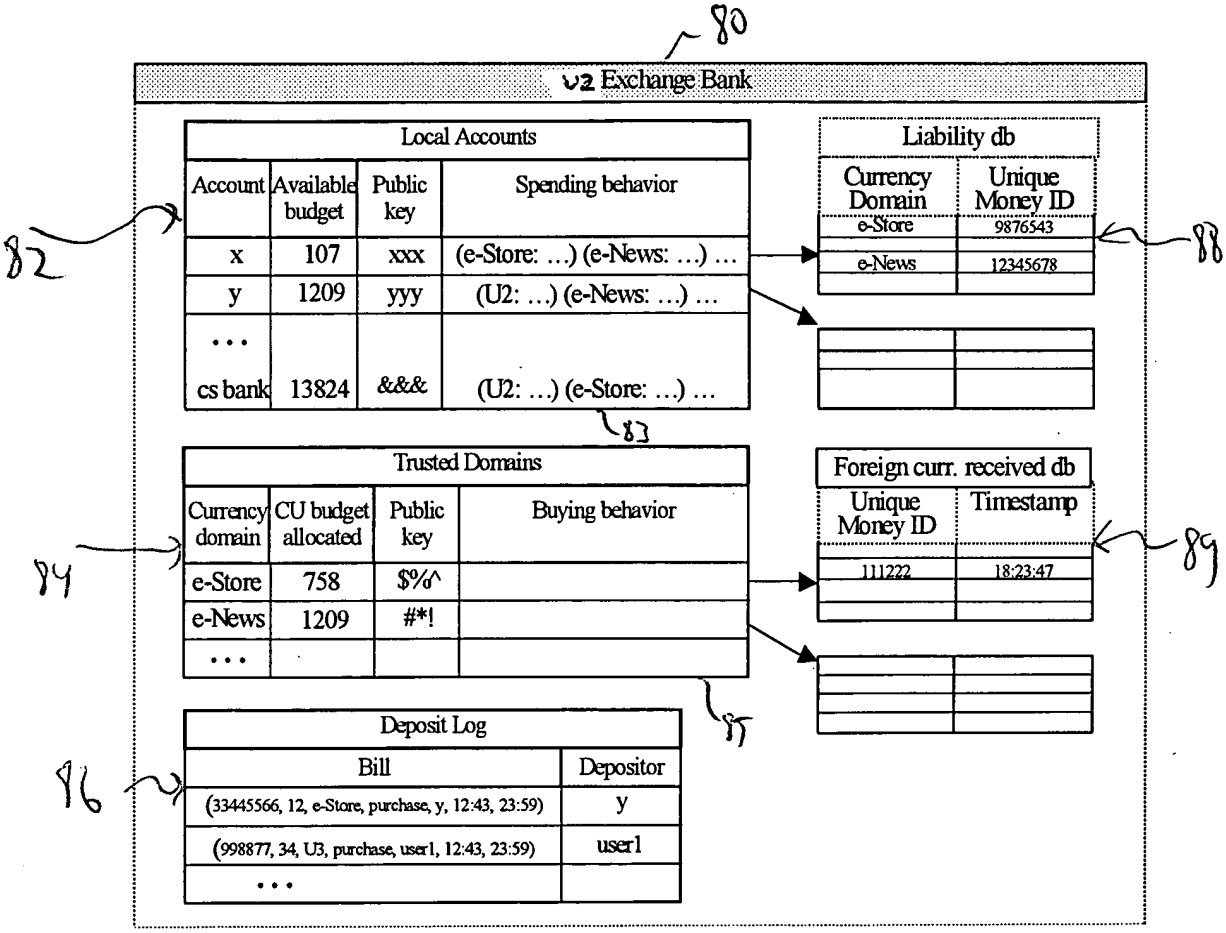

FIG 15

Docket No. 50325-0005